

# ELECTRONICS CIRCUIT TRAINERS

ECT-2002



## **Description : Curriculum Outline :**

1. Design and implementation of basic circuit and waveform generator circuit.
2. Design and implementation of digital circuit and signal process circuit.
3. Design and implementation of regulator DC supply and applications of transistors.
4. Design and implementation of the applications for basic electronic circuits.

## **Features : Curriculum Objectives :**

1. A complete laboratory training system.
2. Understanding the theory and application of basic electronic circuits.
3. Suitable for both technician and vocational high school training.

## **Specification : Chapter 1 Basic Electronic Circuits**

Experiment 1-1: Diode and transistor switch

1. Diode switch
2. Transistor switch
3. Improved transistor switch

Experiment 1-2: Basic applications of operation amplifier (I)

1. Inverter OP amplifier
2. Inverter
3. Non-inverter OP amplifier
4. Voltage follower

Experiment 1-3: Basic applications of operation amplifier (II)

1. Comparator
2. Zero-crossing detector
3. Photoelectric controller

## **Chapter 2 Waveform Generator Circuits**

Experiment 2-1: Schmitt trigger circuit

1. Schmitt trigger
2. 555 delay circuit
3. Delay turn-off circuit

Experiment 2-2: Astable multivibrator

1. OPA astable multivibrator
2. 555 astable multivibrator
3. Sparkling lamp

Experiment 2-3: Crystal oscillator

1. TLL crystal oscillator

### **Chapter 3 Digital Circuits**

Experiment 3-1: BCD adder

1. BCD adder

Experiment 3-2: BCD subtractor

1. BCD subtractor

Experiment 3-3: Application of Timer

1. Monostable circuit
2. Touch switch
3. Alarm circuit

Experiment 3-4: Digit display circuit

1. 7-segment LED display
2. 4518 counter
3. Digit display circuit

Experiment 3-5: LCD

1. LCDM circuit

### **Chapter 4 Signal Process Circuits**

Experiment 4-1: Digital to analog converter

1. R-2R ladder network
2. D/A converter

Experiment 4-2: Analog to digital converter

1. A/D converter

Experiment 4-3: Filters

1. Low-pass filter
2. High-pass filter
3. Bandpass filter
4. Bandstop filter

### **Chapter 5 Regulator DC Supply**

Experiment 5-1: Applications of 7800 series regulator

1. 7805 regulator characteristics
2. 7805 expanded voltage
3. 7805 variable regulator
4. 7805 current source

Experiment 5-2: Applications of 7900 series regulator

1. 7905 regulator characteristics
2. 7905 expanded voltage
3. 7905 variable regulator
4. 7905 current source

## **Chapter 6 LED and Transistor Application Circuits**

Experiment 6-1: Electronic Competition-Answer machine

1. Electronic Competition-Answer machine

Experiment 6-2: Remote lamp controller

1. Basic remote lamp controller
2. Remote lamp controller

Experiment 6-3: Electronic Wheel-Amusement machine

1. Electronic Wheel-Amusement machine